Pushing the Envelope			
2002 Science and Technology			
Academic Standards			
Pennsylvania Science and Technology			
Grade 7			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	PA	SCT.7.3.4.7.D.7	Identify the accomplishments and contributions provided by selected past and present scientists in the field of astronomy.
Chemistry (pgs. 25-41)	PA	SCT.7.3.4.7.A.3	Describe and conduct experiments that identify chemical and physical properties.
Physics and Math (pgs. 43-63)	PA	SCT.7.3.1.7.E.2	Explain how ratio is used to describe change.
Pushing the Envelope			
2002 Science and Technology			
Academic Standards			
Pennsylvania Science and Technology			
Grade 10			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	PA	SCT.10.3.1.10.E.1	Describe how fundamental science and technology concepts are used to solve practical problems (e.g., momentum, Newton's laws of universal gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur's germ theory, relativity, heliocentric theory, gas laws, feedback systems).
Chemistry (pgs. 25-41)	PA	SCT.10.3.1.10.E.2	Recognize that stable systems often involve underlying dynamic changes (e.g., a chemical reaction at equilibrium has molecules reforming continuously).
Chemistry (pgs. 25-41)	PA	SCT.10.3.4.10.A.3	Predict the behavior of gases through the use of Boyle's, Charles' or the ideal gas law, in everyday situations.
Chemistry (pgs. 25-41)	PA	SCT.10.3.4.10.A.6	Describe various types of chemical reactions by applying the laws of conservation of mass and energy.
Physics and Math (pgs. 43-63)	PA	SCT.10.3.1.10.E.1	Describe how fundamental science and technology concepts are used to solve practical problems (e.g., momentum, Newton's laws of universal gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur's germ theory, relativity, heliocentric theory, gas laws, feedback systems).
Physics and Math (pgs. 43-63)	PA	SCT.10.3.4.10.C.7	Know Newton's laws of motion (including inertia, action and reaction) and gravity and apply them to solve problems related to forces and mass.

Rocket Activity (pgs. 69-75)	PA	SCT.10.3.4.10.C .7	Know Newton's laws of motion (including inertia, action and reaction) and gravity and apply them to solve problems related to forces and mass.
Pushing the Envelope			
2002 Science and Technology			
Academic Standards			
Pennsylvania Science and Technology			
Grade 12			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	PA	SCT.12.3.4.12.C .3	Analyze the principles of translational motion, velocity and acceleration as they relate to free fall and projectile motion.